

## CLAIMS

1. A cell separation and recovery apparatus, which comprises:

a treatment part having a non-woven fabric which is bound with a polymer showing a hydrophobic nature at a temperature higher than a predetermined temperature and showing a hydrophilic nature at a temperature lower than the predetermined temperature and a physiologically active substance capable of binding to target cells, and

a liquid temperature controlling part for controlling liquid temperature of the treatment part,

wherein the cells captured on the non-woven fabric are released and recovered from the non-woven fabric by changing the liquid temperature of the treatment part around the prescribed temperature with the liquid temperature controlling part.

2. The cell separation and recovery apparatus according to claim 1, wherein the physiologically active substance is bound to the non-woven fabric via the polymer.

3. The cell separation and recovery apparatus according to claim 1, wherein the physiologically active substance is directly bound to the non-woven fabric.

4. The cell separation and recovery apparatus according to claim 1, wherein the physiologically active substance is bound to the non-woven fabric via a spacer.

5. The cell separation and recovery apparatus according to any one of claims 1 to 4, which is constituted so as to capture the cells on the non-woven fabric

captures when the liquid temperature is lower than the predetermined temperature, and to release the captured cells from the non-woven fabric when the liquid temperature is higher than the predetermined temperature.

6. The cell separation and recovery apparatus according to any one of claims 1 to 4, which is constituted so as to capture the cells on the non-woven fabric when the liquid temperature is higher than the predetermined temperature, and to release the captured cells from the non-woven fabric when the liquid temperature is lower than the predetermined temperature.

7. The cell separation and recovery apparatus according to any one of claims 1 to 6, wherein the polymer is poly(N-isopropylacrylamide).

8. The cell separation and recovery apparatus according to any one of claims 1 to 6, wherein the physiologically active substance is at least one selected from the group consisting of an antigen, an antibody and a protein such as a fragment thereof.

9. A method for separating and recovering cells, which comprises:

bringing a liquid containing cells into contact with a non-woven fabric which is bound with a polymer showing a hydrophobic nature at a temperature higher than a predetermined temperature and showing a hydrophilic nature at a temperature lower than the predetermined temperature and a physiologically active substance capable of binding to target cells, to thereby capture target cells on the non-woven fabric for separating the cells,

releasing the captured cells from the non-woven fabric by changing the temperature of the non-woven fabric around the predetermined temperature, and

recovering the cells released from the non-woven fabric.

10. A method for separating and recovering cells, which comprises:

bringing a liquid containing cells into contact with the non-woven fabric in the treatment part using the separation and recovery apparatus according to any one of claims 1 to 8 to capture target cells on the non-woven fabric for separating the cells from the liquid,

releasing the captured cells from the non-woven fabric by changing the liquid temperature of the treatment part around the predetermined temperature, and

recovering the cells released from the non-woven fabric.